

We claim:

1. Crystalline LBD of ROR α .
2. The crystalline LBD of ROR α of claim 1 wherein said LBD of ROR α is associated with a small molecule.
3. The crystalline LBD of ROR α of claim 1 or 2 wherein said LBD of ROR α is associated with a lipophilic substance.
4. The crystalline LBD of ROR α of claim 1, 2 or 3 wherein said LBD of ROR α is associated with cholesterol or a derivative of cholesterol.
5. The crystalline LBD of ROR α of any of the previous claims wherein said crystal comprises a unit cell having the dimensions of $a=55.9 \text{ \AA} \pm 2 \text{ \AA}$, $b=49.9 \text{ \AA} \pm 2 \text{ \AA}$, $c=60.7 \text{ \AA} \pm 2 \text{ \AA}$ and $\beta=98.7^\circ \pm 5^\circ$ and space group P2(1).
6. The crystalline LBD of ROR α of any of the previous claims wherein said crystalline LBD of ROR α comprises the atomic structure coordinates of Table 8 or 9 or a part thereof.
7. A heavy atom derivative of a crystal according to any of the previous claims.
8. A computer readable medium comprising a model embodying the structure of the LBD ROR α comprising one or more sets of atomic coordinates in Table 8 or 9.
9. A method for identifying a substance binding to the LBD of ROR α , comprising:
 - (a) providing a model embodying the structure of the LBD of ROR α comprising one or more sets of atomic coordinates in Table 8 or 9;
 - (b) assessing the interaction of a candidate substance with said model, and;
 - (c) selecting a substance which is predicted to interact with the LBD of ROR α .
10. The method of claim 9 wherein the selected substance is further contacted with the LBD of ROR α .

11. A method according to claim 9 or 10 wherein the substance interacts directly or indirectly with one or more amino acids selected from the group consisting of:
Cys321, Gln322, Tyr323, Leu328, Trp353, Cys356, Ala357, Lys359, Ile360, Glu362, Ala363, Val397, Phe398, Arg400, Met401, Arg403, Ala404, Val412, Tyr413, Phe414, Phe424, Leu427, Cys429, Phe432, Ile433, Val436, His517, Lys520 and Tyr540.
12. A method according to claim 9 or 10 wherein the substance interacts directly or indirectly with one or more amino acids selected from the group consisting of:
Gln322, Tyr323, Arg400 and Arg403.
13. A method according to claim 9, 10, 11 or 12 using a homologue of said model, wherein said homologue has a root mean square derivation from the backbone atoms of said amino acids of not more than 1.5 Å.
14. The method of claim 9, 10, 11, 12 or 13 wherein the substance is a small molecule.
15. The method of claim 14 wherein said substance is cholesterol or a cholesterol derivative.
16. A method for identifying an agonist or antagonist that binds to the LBD of ROR α comprising:
(a) selecting a potential compound by performing rational drug design with one or more sets of atomic coordinates set forth in Table 8 or 9, wherein said selecting is performed in conjunction with computer modeling; (b) contacting the potential compound with a LBD of ROR α and (c) measuring the biological activity of ROR α .
17. The method of claim 16 wherein said compound is designed to interact directly or indirectly with one or more amino acids selected from the group consisting of:
Cys321, Gln322, Tyr323, Leu328, Trp353, Cys356, Ala357, Lys359, Ile360, Glu362, Ala363, Val397, Phe398, Arg400, Met401, Arg403, Ala404, Val412, Tyr413, Phe414, Phe424, Leu427, Cys429, Phe432, Ile433, Val436, His517, Lys520 and Tyr540.
18. A method according to claim 17 wherein the substance interacts directly or indirectly with one or more amino acids selected from the group consisting of:
Gln322, Tyr323, Arg400 and Arg403.

19. The method of claim 18 wherein said compound is selected as ROR α agonist if it stabilizes helix 12 of the LBD of ROR α in the agonist position.
20. The method of claim 19 wherein said compound is selected as ROR α antagonist if it destabilizes helix 12 of the LBD of ROR α from the agonist position.
21. A pharmaceutical composition comprising a therapeutically effective amount of a compound stabilizing helix 12 of ROR α in the agonist position and a pharmaceutically acceptable carrier.
22. A pharmaceutical composition comprising a therapeutically effective amount of a compound destabilizing helix 12 of ROR α from the agonist position and a pharmaceutically acceptable carrier.
23. A method of screening for compounds interacting with ROR α comprising:
(a) contacting ROR α with a candidate compound, (b) measuring interactions between the candidate compound and ROR α in the absence of sterols, and (c) selecting said compound if it interacts with ROR α .
24. The method of claim 23 for the screening for compounds useful for the treatment of cholesterol related diseases.
25. The method of claim 23 for the screening for compounds useful for the treatment of endocrine disorders, atherosclerosis and cardiovascular diseases, metabolic diseases such as for instance obesity, inflammatory diseases, skin diseases, diseases related to the CNS, such as for instance Alzheimer disease and tumor related diseases.
26. Use of ROR α in cellular screening assays for the identification of compounds useful for the treatment of cholesterol related diseases.
27. Use of ROR α in cellular screening assays for the identification of compounds with endocrine disorders, atherosclerosis and cardiovascular diseases, metabolic diseases such as for instance obesity, inflammatory diseases, skin diseases, diseases related to the CNS, such as for instance Alzheimer disease and tumor related diseases.

28. A composition comprising LBD of ROR α and cholesterol or a cholesterol derivative.

29. A composition according to claim 28 wherein said composition is crystallizable.